

FLIGHT

The
AIRCRAFT
ENGINEER
&
AIRSHIPS

First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER

A Journal devoted to the Interests, Practice, and Progress of Aerial Locomotion and Transport

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DIARY OF FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in the following list:—

- May 31–June 9 Third Czecho-Slovak International Aeronautical Exhibition, Prague
June 15 Gordon Bennett Balloon Race, Belgium.
June 21 F.A.I. Conference Opens, Paris.
July 24–Aug. 10 Tour de France for Light 'Planes.
Aug. 4 Aerial Derby at Lympne
Sept. 8–13 Light 'Plane Competitions at Lympne

INDEX FOR VOL. XV.

The Index for Vol. XV of FLIGHT (January to December, 1923) is now ready, and can be obtained from the Publishers, 36, Great Queen Street, Kingsway, W.C. 2. Price 1s. per copy (1s. 1d. post free).

EDITORIAL COMMENT.



THE completion and initial flying tests of the first Handley Page three-engined commercial aeroplane, which is described and illustrated elsewhere in this issue of FLIGHT, bring into prominence the question of reliability in its relation to economical as well as to safe and regular flying. Although the three-engined type has yet to prove itself in actual everyday service, there are both theoretical and sound grounds for believing that this division of the power plant will practically give immunity from total engine failure, and probably immunity from forced landings. This is, of course, merely another way of saying that the safety of flying will be increased, as the risk of a crash on a terminal aerodrome, or even on a properly prepared intermediate aerodrome, is very small indeed. Increased safety is not, however, the only gain to be expected from the three-engined arrangement. The very fact that engine failure sufficiently serious to necessitate a forced landing is not likely to occur should mean that, when navigation instruments, turn indicators, etc., are further developed, pilots will be willing to fly in foggy weather, or even at night. The time when that is possible is not yet, but it does appear that the three-engined aeroplane has brought that day considerably nearer. To this subject we shall return presently.

That a price, and a not inconsiderable price, has to be paid for this reliability cannot be denied. Thus, in the case of the Handley Page W. 8 F, the paying load consists of 10 passengers only, with, it is true, rather more than the usual quota of luggage. The total engine power is approximately 800 h.p., so that the horsepower expenditure per passenger carried is 80 b.h.p. This cannot, of course, be regarded as economical flying, but under the peculiar conditions obtaining in the Congo, freedom from breakdown was regarded as of greater importance than economy. In fact, absence of forced landings is essential, and if the price that has to be paid for reliability is high there is nothing for it but to face

it. In the present machine the total paying load carried is about 2,550 lbs., or roughly 3.2 lbs./h.p., as against 5 lbs./h.p. in the twin-engined machine.

From the foregoing figures it might appear that the W. 8 F is not a very commercial proposition. On the usual routes, and flying in reasonably good flying weather only, this is undoubtedly the case. One cannot very well afford to expend, or at any rate to carry ready to be used, as much as 80 h.p. for each passenger carried. Nevertheless, this does not mean that the type is hopeless, even on European lines. Other things enter into the equation. For instance, as already mentioned, there is the question of flying in foggy weather, or when the clouds are very low. If the reliability of the three-engined arrangement can be proved to be such that a pilot need never make a forced landing *en route*, and can always count upon getting through to his destination, or to some other aerodrome at which he has been advised that the conditions are better, he will naturally undertake flights which he would not consider on a machine likely to have to be forced-landed somewhere in the fog. Thus, a certain amount of revenue might accrue as a direct result of a greater number of flights, while indirectly presumably the reputation for safety, reliability, and the carrying-out of 100 per cent. of scheduled flights would also result in the attraction of more revenue.

Then there is the question of flying at night. If it be found that the three-engined machine is so reliable that forced landings need not be expected, pilots would, with the further development and perfectioning of navigational instruments, undertake night flights over quite long distances as a regular thing.

Looked upon in one way, this would mean that the three-engined machine could be used for night flying over sections of a long route over which more economical machines were used for the day flying. The resulting speeding-up would greatly enhance the value of an air service over long distances. From another point of view, the capacity to fly at night is virtually equivalent to doubling the speed of a machine. Thus, over a long route a machine which could fly by night as well as by day, having a cruising speed of 60 m.p.h., would in fact be equivalent to a machine flying by day only, but having a cruising speed of 120 m.p.h. These figures are, perhaps, a little on the optimistic side as regards the night flying machine, but they do roughly represent the advantage of being able to fly at night. In practice it might be that the night flying machine cruising at 60 m.p.h. was only equivalent to the day-flying machine travelling at 100 m.p.h. Even on that basis, however, the greater economy of the slower machine should go a very long way towards counterbalancing the relative inefficiency of the three-engined type.

Theoretically, at least, there is thus good cause to believe that the relatively slow, but totally reliable, machine capable of flying by night as well as by day is possible, and that its development is only a question of time.

In the meantime we congratulate Handley Page on having produced the first machine of this type, and express the hope that the service planned for the Congo will not only be a success, but will provide data that may be of the greatest value when applied to conditions nearer home.

Air Ministry "Encouragement" Under the Official Notices of the Royal Aero Club this week will be found two paragraphs which are of more than usual interest. One states, for the first time officially, that a Committee has been appointed to make all the arrangements for the two British competitors who are to take part in the Schneider Cup Race that is to be held in America this summer. This is the first official intimation that two British machines will take part in this famous race. Perhaps those who study intelligently the names of the gentlemen appointed to that Committee will be able to make a shrewd guess as to the identity of the two machines that are to represent Great Britain. At present we will let it go at that. In the meantime—France having renounced—it is highly satisfactory to know that this country is not to sit by idly and watch the coveted Cup being competed for without an effort to regain it.

The other statement to which we have referred is of a far less satisfactory character. In effect this statement says that the Air Ministry has turned down the suggestion that Service machines and Service pilots should be permitted to take part in the King's Cup race, which, in that case, would be for seaplanes and amphibians.

When recently the idea was first suggested of making this race a seaplane race, we applauded it as being calculated to give a much-needed fillip to the popular interest in seaplanes. At the same time we pointed out that unless the Air Ministry were willing to let manufacturers enter Government machines finished in time for the race, and of a type suitable for taking part, there was small chance of the R.Ae.C. being able to dig up a sufficient number of privately-owned seaplanes to make the race worth while.

The statement says that "this suggestion has not been agreed to." In other words, although it may not have been finally turned down, it has not been agreed to. Frankly, we cannot say we are very surprised. The Air Ministry's method of "encouraging" aviation in the past has—whether from pressure from higher quarters or otherwise—generally taken the form of putting many obstacles in the way unnecessarily. Anything connected with flying has been so hedged around with official rules and red tape that a man who is unfortunate enough to be interested in civilian flying has by now scarcely a soul he dare call his own. He may not take an aeroplane of any sort more than three miles away from an aerodrome without licences. If he does get his pilot's licence and his airworthiness certificate, he still dare not make a cross-country flight, because when he gets to the other end he is unable to leave until a ground engineer has "passed" him. The "Great-Great-Grandmothering" of the Air Ministry is reaching such a state that it must inevitably kill itself by ridicule. Under this atmosphere it is small wonder that Air Ministry machines and Service pilots are not to be allowed to enter for the King's Cup. In the case of machines one fails to see why. Most manufacturers would probably gladly pay insurance on their machine for the race, and the only possible risk run by the Air Ministry would be a delay in getting delivery of the machine.

And according to past and present tactics with new deliveries, this would not appear to count for much.

THE NEW D.H. AUTOMATIC CAMBER GEAR

SOME weeks ago we announced that the de Havilland Aircraft Company, Ltd., had developed, and were experimenting with, a new device for altering, automatically, the camber of the wings during flight. The device has since then been further perfected, and on Thursday of last week we were invited by Capt. Geoffrey de Havilland to witness actual flying tests with the new camber gear. Unfortunately, for reasons connected with the granting of foreign patents, it is not possible to give, this week, a detailed description of the actual mechanism employed, and details must be reserved for a future occasion. The general principle may, however, be

small extent as is caused by the weight of the cambering device, which is quite light). The landing speed is, however, considerably reduced.

It is not, perhaps, in the actual reduction in landing speed attained that the chief merit of the D.H. camber gear lies, although this is not inconsiderable. (In the D.H. 50 it amounts to something like 7 or 8 miles per hour.) Rather is it in the improvement in the angle of climb, and in the reduction in speed on approaching an aerodrome.

On the occasion of the demonstration last week we took our seat in the D.H. 50, with Capt. de Havilland himself as



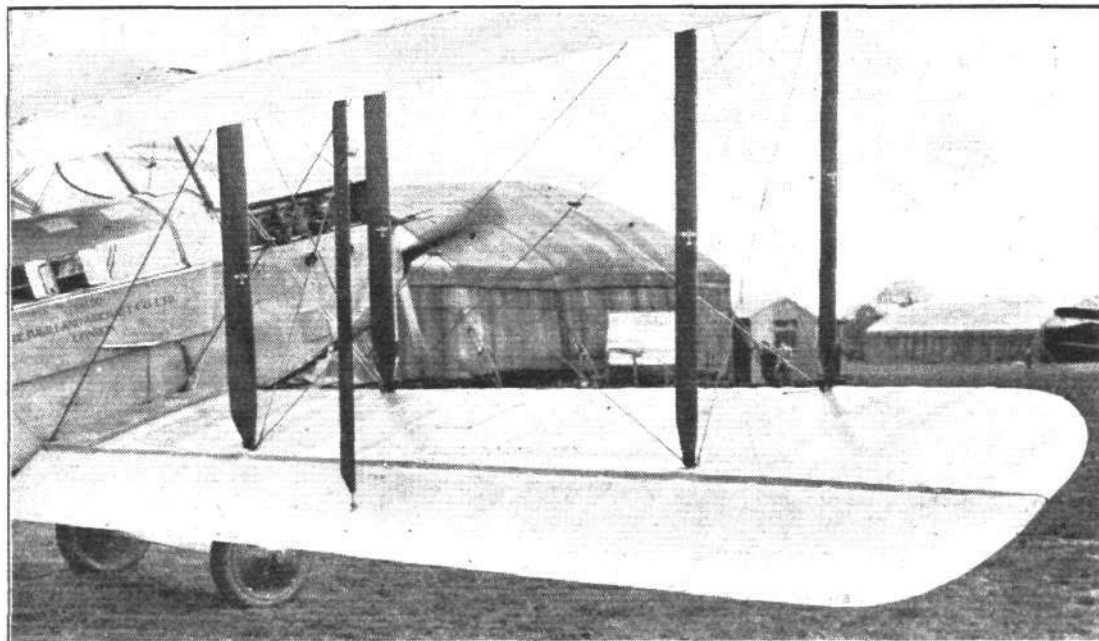
The D.H. 50 Landing at about 40 m.p.h. Air Speed: The flaps are right down, and it should be noted that although the machine is very near its stalling angle the tail is well up.

outlined, and an account given of the results and impressions of the flying tests.

Briefly explained, the de Havilland automatic camber device consists of wing flaps extending over the whole length of the wings, and working upwardly against the action of springs. On the ground, or at very low speeds, all the flaps are right down to the limit of their travel. Once the machine gets into the air the flaps begin to move up against the

passenger and Capt. Broad as pilot, and were taken for a flight around the district surrounding the Stag Lane aerodrome. The machine got off after a very short run, and the climb appeared extremely good. By this we do not necessarily mean that the rate of climb was better than that of the standard machine. It may have been, but we do not know. What we mean by "better climb" is better *angle of climb*.

During the flight referred to Capt. Broad gradually slowed



Trailing edge flap of the D.H. 50. The aileron extends over the whole span of the wings.

action of the springs. According to the spring tension the speed at which the flaps are right up varies. In the D.H. 50, with 240 h.p. Siddeley "Puma" engine, this speed is about 70 m.p.h. At about this speed, and at all speeds above it, the flaps are lying flush with the rest of the wing section, *i.e.*, the wing section becomes normal. At lower speeds the flaps gradually move down, until at about 45 to 50 m.p.h. they are right down. It will thus be seen that the top speed of the machine is not in any way affected (except, of course, to such

down the machine, the air-speed indicator needle creeping back slowly to 60, 50, 45 and 40 m.p.h. When the needle touched the 40 m.p.h. figure the machine gently stalled. The recovery was extremely rapid, and it was estimated that the drop from stall until the machine was again flying level (without opening the throttle) could not have been more than about 60 ft. It would appear that in recovering from a stall the spring-loaded trailing edge flaps assist materially.

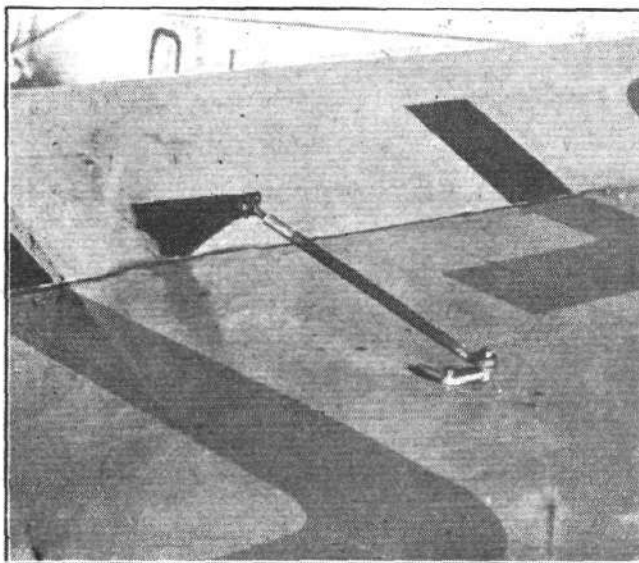
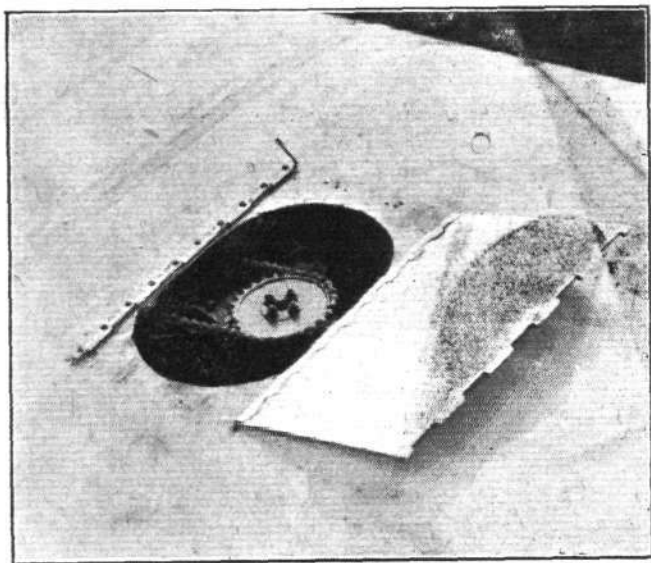
Another thing that was particularly noticeable during the

flight was that whatever the speed shown on the indicator, the level of the fuselage altered but little. This was, of course, to be expected, as the fact of the flaps coming down virtually increases the angle of incidence as well as the camber, and is thus equivalent to dropping the tail. It was, however, rather startling to have the fact brought home to one by actual experience.

Even on approaching the aerodrome when about to land, the tail remained nearly horizontal, and the speed at which

to this flap gear might accidentally stall the machine, being accustomed to dropping the tail for landing, but this is purely a question of the pilot getting used to the particular machine, and is hardly worth serious consideration.

It is not difficult to foresee a line of development by which the Handley Page front slot and permanently slotted ailerons are combined with the de Havilland automatic cambering device, and, as a matter of fact, some such combination should add very greatly to the speed range of a machine, especially



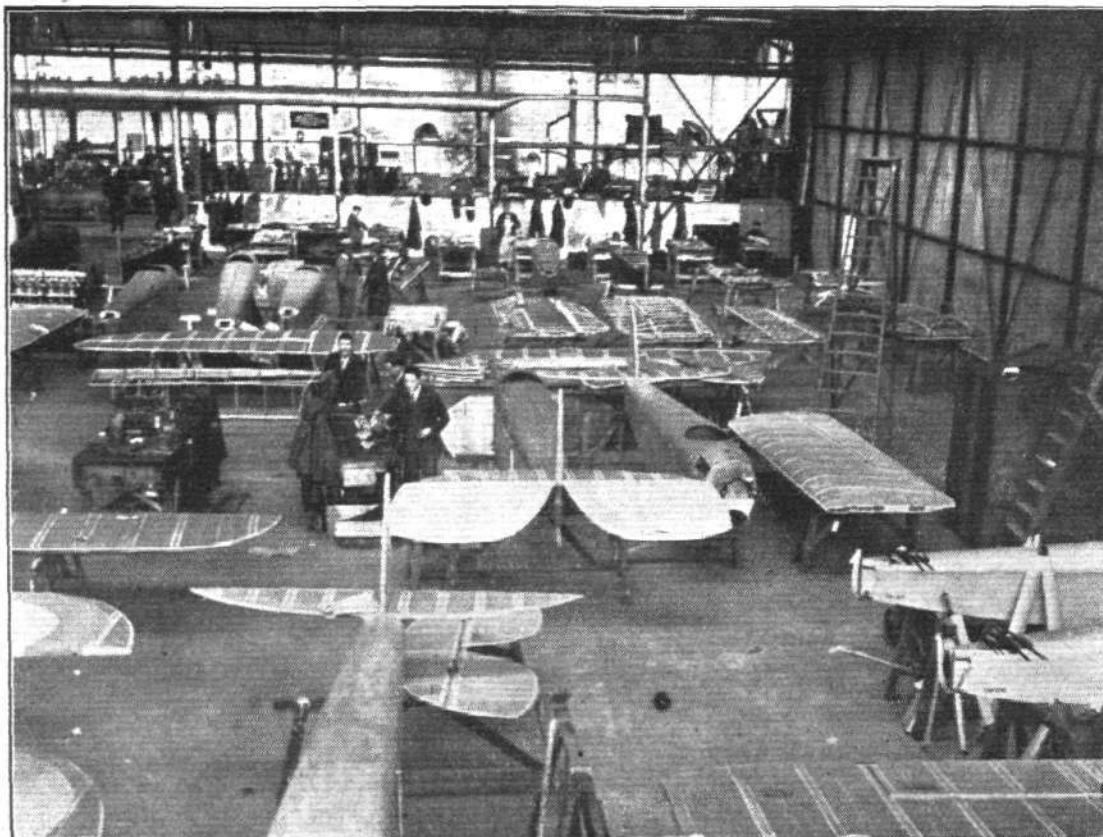
THE DE HAVILLAND AUTOMATIC CAMBERING DEVICE : On the left the inspection door on the lower starboard wing is shown open, disclosing the aileron sprocket. On the right a view underneath the wing, showing the crank, rod, and king-post of the aileron and flap control.

the aerodrome was approached seemed ridiculously low, especially when taken in conjunction with the level fuselage. As a matter of fact, the feeling of floating into an aerodrome at about 45 m.p.h. air speed with the tail still well up is wholly delightful, and gives a sense of security that must be experienced to be appreciated. On dropping to the ground the machine stopped its forward speed almost in its own length, the flaps, then right down and the whole wing at a large angle, acting as a very efficient air brake.

There is, of course, the risk that a pilot unaccustomed

by using the new type H.P. metal auxiliary aerofoil, which does not affect the wing at all when closed. The disadvantage of the large angles necessitated by the H.P. slotted wing should be to a great extent counterbalanced by the D.H. camber gear.

In the meantime we understand that the de Havilland Aircraft Company are prepared to consider the granting of licences to any constructor who desires to employ the camber gear, much as several constructors are already incorporating the de Havilland differential aileron gear, which also constitutes a de Havilland Patent.



A Sign of the Times : A batch of 12 D.H. 53 light 'planes coming through the shops at Stag Lane.

The Royal Aero Club of the United Kingdom

OFFICIAL NOTICES TO MEMBERS

THE ROYAL AERO CLUB AND THE SOCIETY OF BRITISH AIRCRAFT CONSTRUCTORS

Joint Standing Committee

Royal Aero Club.—Major-General Sir W. S. Brancker, K.C.B., Lieut.-Col. M. O. Darby, Lieut.-Col. F. K. McClean, A.F.C., Lieut.-Col. A. Ogilvie, C.B.E.

Society of British Aircraft Constructors.—Capt. H. E. P. D. Acland, Commander James Bird, C. R. Fairey, H. T. Vane.

Secretaries.—H. E. Perrin and C. V. Allen.

The Joint Standing Committee met on March 27 and April 2 and 16, 1924.

The King's Cup Race.—The Committee, after consideration, were in favour of the King's Cup this year being confined to Seaplanes. The Society urged that the course should be round England and the Southern part of Scotland. This would mean a course of approximately 1,400 miles, occupying, with the necessary stops at various towns *en route*, three days. The Royal Aero Club had sent a deputation to the Under-Secretary of State for Air, with a view to obtaining permission from the Air Council for Service machines and Service pilots to take part. This suggestion, however, had not been agreed to by the Air Council. The Committee were now preparing a list of machines which might be available for the race.

Schneider Cup.—A sub-committee has been appointed to make all the arrangements for the two British competitors in the Schneider Race to be held at Baltimore, U.S.A., in October next.

The Sub-Committee is as follows:—Lieut.-Col. M. O. Darby, Commander James Bird, H. Burroughes, Basil Johnson, H. T. Vane.

Royal Aero Club Racing Fund.—Mr. Samuel Samuel, M.P., £1,000; Sir Basil Zaharoff, £21; total, £1,021.

ROYAL AERO CLUB SUB-COMMITTEES.

The following Sub-Committees have been appointed for the year:—

Racing.—Major-Gen. Sir W. S. Brancker, K.C.B., Lieut.-Col. M. O. Darby; Group-Capt. F. W. Bowhill, C.M.G., D.S.O., R.A.F.; Lieut.-Col. W. A. Bristow; Capt. R. J. Goodman Crouch; Lord Edward Grosvenor; Col. F. Lindsay Lloyd, C.M.G., C.B.E., Lieut.-Col. A. Ogilvie, C.B.E.; Sir Guy Standing, K.B.E.; Howard T. Wright.

Technical.—Griffith Brewer; Eng.-Com. W. Briggs, R.N.; Major J. S. Buchanan; Lieut.-Col. C. B. Heald, C.B.E.; Major R. H. Mayo; Lieut.-Col. M. O'Gorman, C.B.; Lieut.-Col. H. W. S. Outram, C.B.E.; Squad-Leader M. E. A. Wright, A.F.C.

Finance.—Ernest C. Bucknall; Lieut.-Col. M. O. Darby; J. Stewart Mallam; Lieut.-Col. A. Ogilvie, C.B.E.; F. Handley Page.

House.—Major H. Graeme Anderson; Ernest C. Bucknall; Major Herbert J. Corin; D. C. MacLachlan; J. Stewart Mallam; Capt. D. G. Murray; Capt. L. V. Pearkes; Major S. V. Sippe, D.S.O.

Flying Services Fund.—Group-Capt. F. W. Bowhill, C.M.G., D.S.O., R.A.F.; Lieut.-Col. Alan Dore, D.S.O.; Chester Fox; D. C. MacLachlan; Capt. D. G. Murray.

Library.—C. G. Grey; Major C. C. Turner; Howard T. Wright.

Joint Standing (R.Ae.C. and S.B.A.C.).—Lieut.-Col. F. K. McClean, A.F.C.; Major-Gen. Sir W. S. Brancker, K.C.B.; Lieut.-Col. M. O. Darby; Lieut.-Col. A. Ogilvie, C.B.E.

The following are *ex-officio* Members of all Committees:—

The Chairman: Lieut.-Col. F. K. McClean, A.F.C.

Vice-Chairman: Lieut.-Col. John D. Dunville, C.B.E.

Past Chairman: Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S.

Past Chairman: Lieut.-Col. J. T. C. Moore-Brabazon, M.C., M.P.

Offices: THE ROYAL AERO CLUB,

3, CLIFFORD STREET, LONDON, W.1

H. E. PERRIN, Secretary.

AIRCRAFT APPRENTICES' VACANCIES

Openings for 700 Boys in Royal Air Force

As a result of the Government's decision to increase the strength of the Royal Air Force for home defence purposes, approximately 700 aircraft apprentices, who will be trained as skilled craftsmen, are required for entry into the R.A.F. technical schools of training within the next few months. Nearly 800 apprentices have already completed their training and been posted to squadrons as qualified craftsmen, and more than 3,000 are at present undergoing training at Halton Bucks, Cranwell, Lincolnshire, and Flowerdown, Hants. Aircraft apprentices are selected from two examinations—one an open examination conducted by the Civil Service Commissioners, and the other a limited competition conducted by the Air Ministry in conjunction with the local education authorities of the country.

The closing date for applications to sit the next limited competition, which will take place on June 3, is May 6, but applications received during the subsequent week will be accepted. Candidates for this examination, who must be physically fit and normally be between the age of 15 and 16½ at the time of entry, should make application, if they are still at school, to their headmasters, with a view to securing a nomination from the education authority responsible for the school. If they have left school application should be made to the Advisory Committee for Juvenile Employment in their area, while boy scouts can also apply to the authorities of the Boy Scout Association and territorial cadets to the officer commanding their units.

There is no fee for this examination, which is carried out at schools in each area where boys are nominated. The syllabus consists of mathematics, experimental science, English and a general paper, and has been designed to be suitable for boys still at school and following a normal course of instruction. When appointed as aircraft apprentices boys are given three years' training in a skilled trade and general

education by civilian schoolmasters during this period up to the standard of a good technical school. The principal trades open to boys, who are invited in advance to indicate their preference, are carpenter-rigger, fitter, coppersmith, wireless operator mechanic, electrician, instrument maker and turners. In assigning boys to the various trades every endeavour is made to give effect to each boy's individual preference, the wishes of the boys in this respect being considered in the order of their position on the examination list.

During the period of training there is careful supervision of health and general welfare, medical attendance, religious instruction from the chaplains of several denominations, and recreation facilities. The housing conditions and food are good. Six weeks' annual leave is granted.

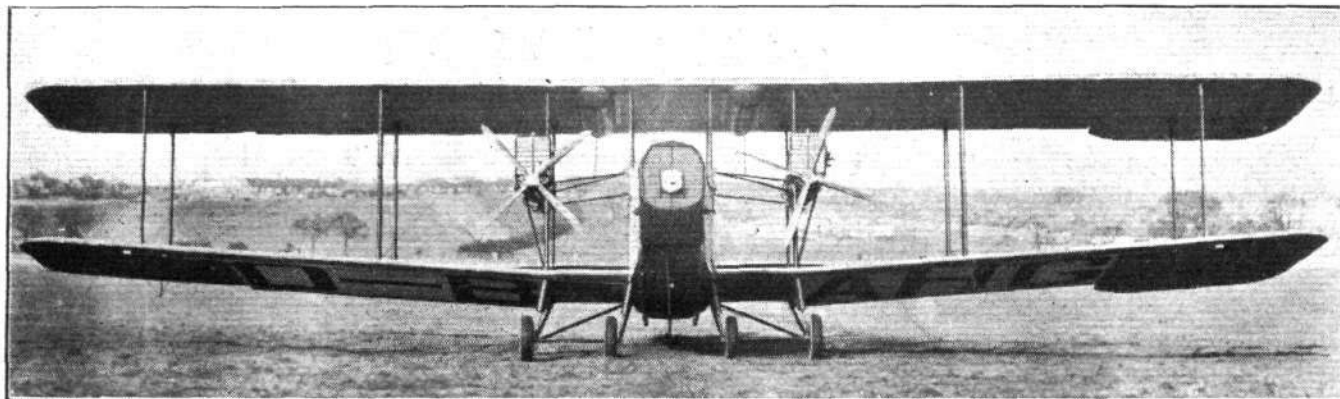
Pay is given, under existing regulations, at 1s. 6d. a day until the age of 18, and then at 3s. a day until the course is completed. At the end of the course the aircraft apprentice must sit a passing-out examination for promotion to the rank of leading airframe fitter, with pay varying from 5s. 2d. to 5s. 6d. per day. The above rates may be subject to revision in the immediate future. Those boys who do not qualify for the highest grade will be appointed as airframe fitters with slightly lower commencing rates of pay. A certain number of the leading apprentices are sent on completion of their course to the Royal Air Force Cadet College for training as commissioned officers. Others are given an advanced course, and are eventually appointed N.C.O.s. with the rank of corporal. There is also a reasonable chance of selection for a further number to qualify later in flying to become airmen pilots. Headmasters and others interested in the scheme can obtain copies of the regulations for entry (A.P. 134) on application to the Secretary, Air Ministry, Kingsway, W.C. 2.

HANDLEY PAGE THREE-ENGINEED COMMERCIAL AEROPLANE FOR BELGIUM

Interesting New Machine to be used in Belgian Congo

ON Friday of last week representatives of the Press were present at a demonstration of the first of the new Handley Page three-engine aeroplanes which has just been completed at the Handley Page Cricklewood Works. The new machine

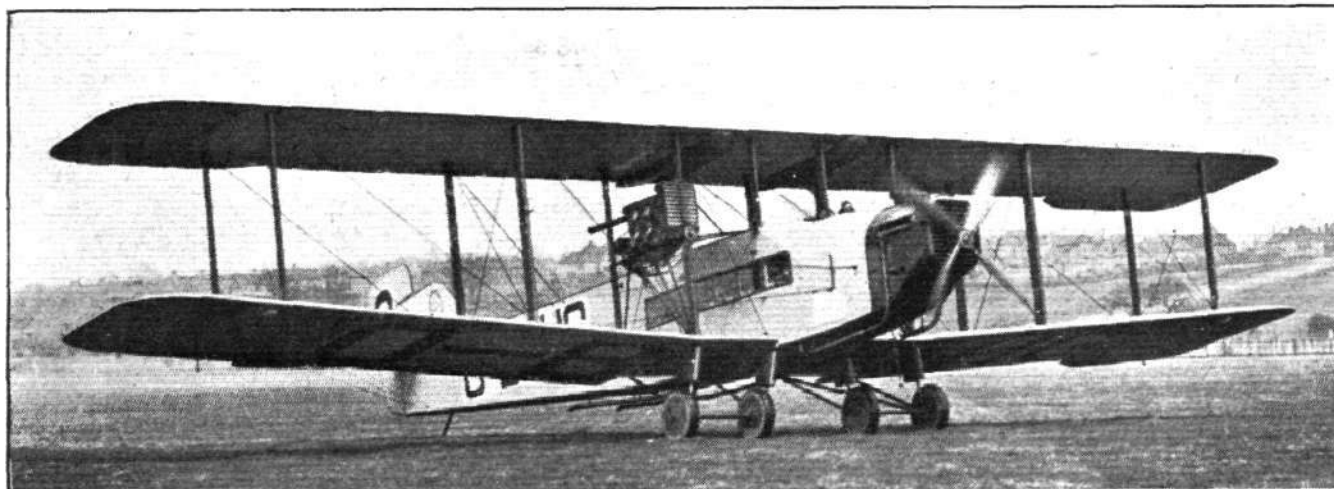
It is interesting to study the way in which the Belgian Government have developed their civil aviation work. In 1919, in collaboration with Handley Page Transport, Ltd., on the London-Bruxelles route, with the Messageries Aériennes



THE HANDLEY PAGE W. 8 F : Front view. The central Rolls-Royce "Eagle" engine is running.

has been built for the Belgian Air Navigation Co., Ltd., or to give it its proper Belgian title, the *Société Anonyme Belge d'Exploitation de la Navigation Aérienne*, usually abbreviated to the initial letters SABENA. It is understood that although the first machine was built at Cricklewood, subsequent ones

on the London-Paris route and with the Royal Dutch Transport Company on the Amsterdam-Bruxelles route, a complete programme of air transport was arranged under a company formed to investigate the commercial possibilities of air transport. The name of the company indicates its object,



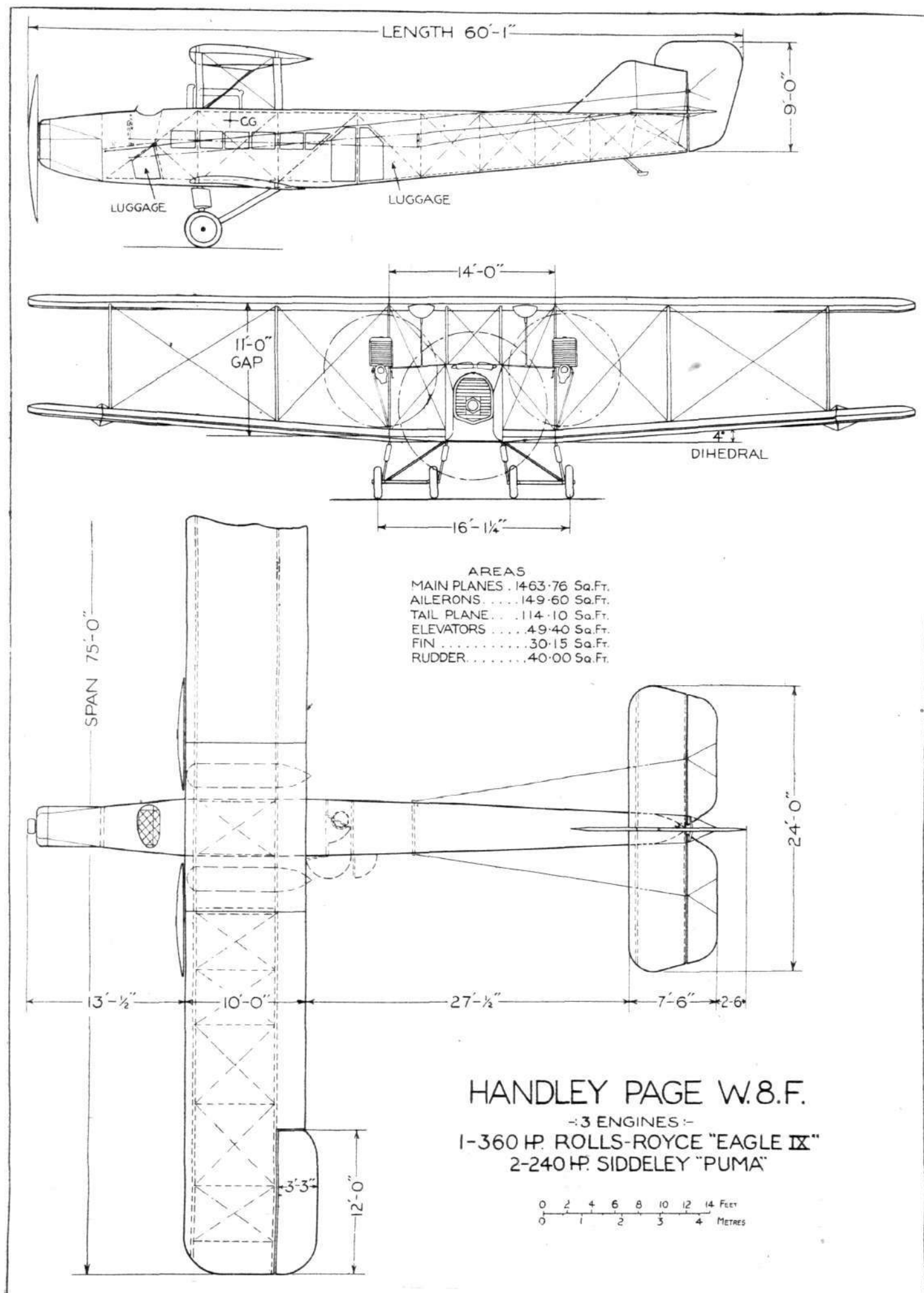
THE HANDLEY PAGE W. 8 F : Three-quarter front view. Next to the pilot is Major-General Sir Sefton Brancker, Director of Civil Aviation.

of the same type are to be constructed in Belgium under licence by the *Société Anonyme Belge de Constructions Aéronautiques* (SABCA). The machines will, we gather, be used both on the European air lines and also, and particularly, on a service to be established in Belgian Congo.

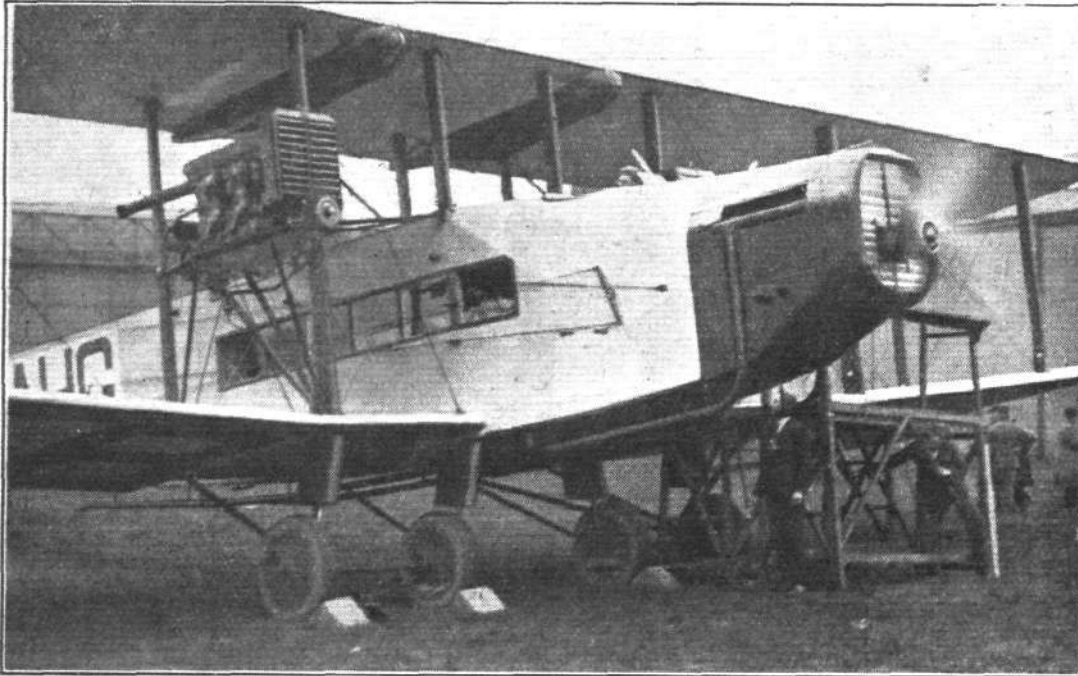
being the National Company for Investigating Air Transport (*Société Nationale pour l'Etude des Transport Aériens*). A Belgian service was run during 1920 and 1921, in connection with the above-mentioned firms, and in 1922 and 1923 a service was run by the Belgian company themselves, a



The Handley Page W. 8 F : Three-quarter rear view.



THE HANDLEY PAGE W.8 F : General arrangement drawings, to scale.



“Close-up” of two of the three engines of the Handley Page W.8 F: The engine in the nose is a Rolls-Royce “Eagle,” while on each wing is a Siddeley “Puma.”

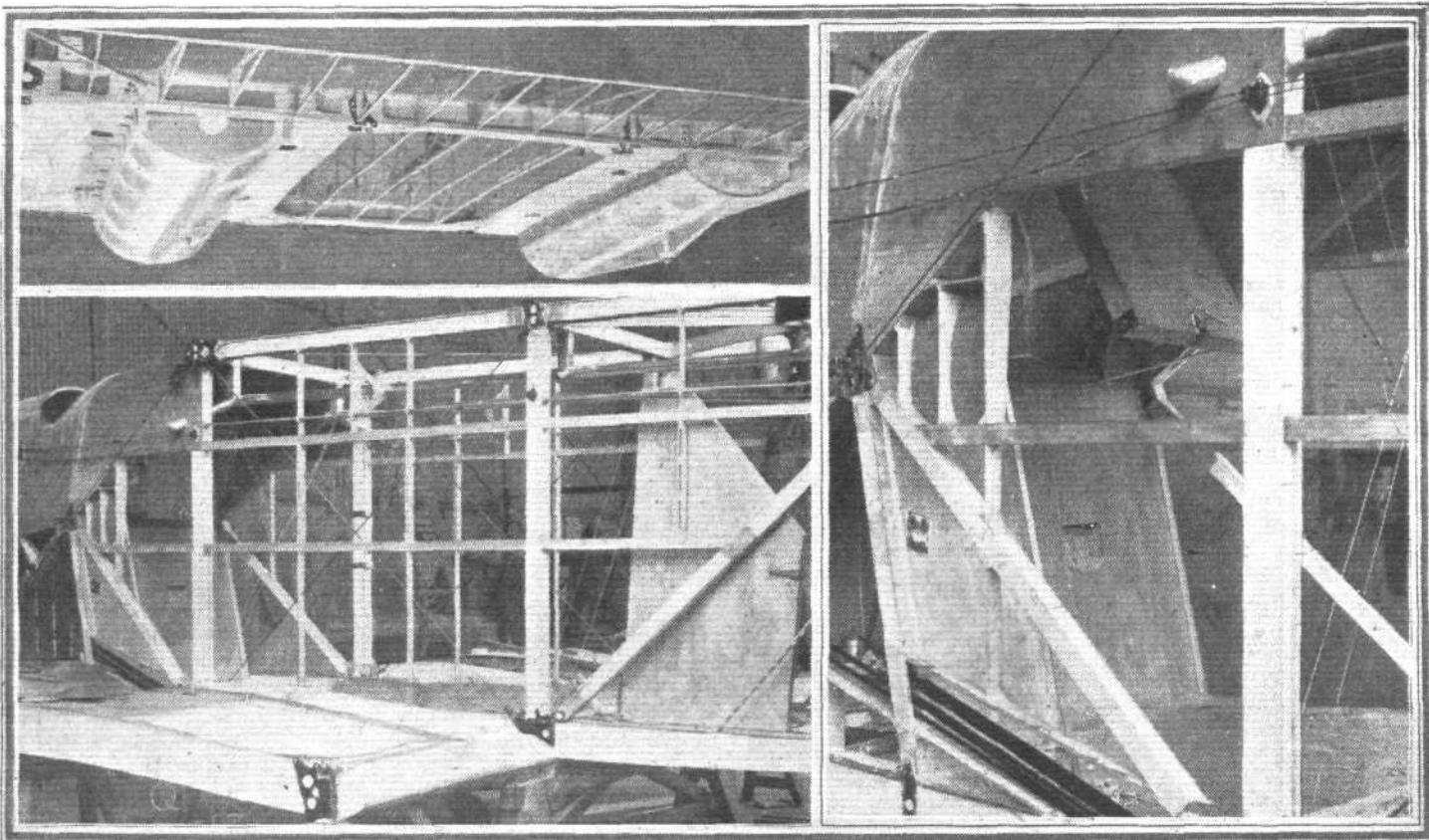
special service for newspapers being flown throughout the summer of last year. In the development of this work the Belgian company has had the very active interest and support of H.M. King Albert, who believes wholeheartedly in air transport, and Their Majesties the King and Queen have travelled extensively by air in their own machines.

It was very largely due to His Majesty's initiative and material support that the Belgian company were able also to support the Air Line in the Belgian Congo. King Albert himself provided the funds for this purpose. The service along the Congo during the last three years demonstrated the possibilities of flying advantageously in that country under the organisation of SNETA's original programme.

As a result of the successful investigation which the original Belgian company carried on, a new company was formed last year called the National Belgian Air Navigation Company, to commence on a larger scale air transport in Europe and in the Belgian Congo. The Belgian company made a very

close investigation as to the conditions that would be encountered and the type of machine that was best suited to fulfil the duties required, for the Belgian Congo in particular, where a line of not less than 1,200 miles has to be flown from Leopoldville to Elizabethville, dense forests have to be traversed, with no landing places, and aerodromes at places far apart. It was, therefore, essential that the organisation should provide for the service to be run regularly without a possible chance—as far as human ingenuity could arrange it—of a breakdown or forced landing occurring. To ensure as far as possible absolute security from forced landings, the twin Rolls-Royce motors have been replaced by three engines, one in the nose of the fuselage and the other two in the nacelles in the position originally occupied by the two Rolls engines.

The decisions in regard to these matters have only been reached after long conferences between the Belgian aviation experts. Colonel van Crombrugge and Major Smyers, of the



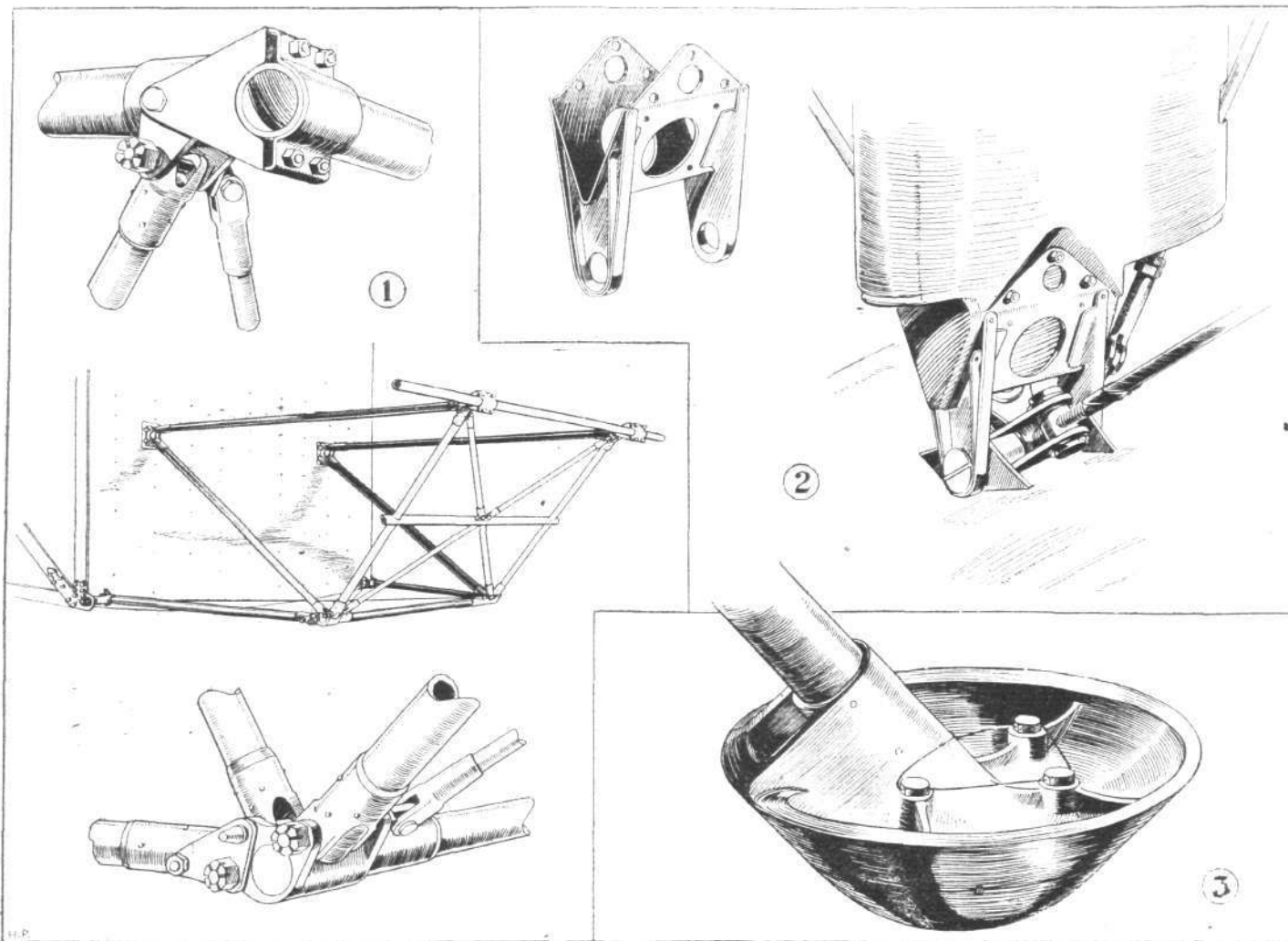
THE HANDLEY PAGE W. 8 F: In the top left-hand corner is seen the top plane centre-section, with the two gravity-feed petrol tanks. Below a view of the cabin section of the fuselage before covering, and on the right a larger view showing step and door giving access to the pilot's cockpit. The tubing of the ventilation system may be seen.

Belgian Military Aviation, Messrs. Marchel and Robert Thys of the SNETA and Commandants Nelis and Renard, Managing Directors of the SABENA. M. Demonty, Managing Director of the SABCA, as well as Professor Allard, the Director of the Belgian Technical Service.

The need for care in arriving at these decisions is only realised when one considers that 1,200 miles have to be flown on a regular schedule right up the Congo under tropical conditions, the line being practically along the Equator, and that a forced landing would mean the complete loss of the machine. At the present time, between the capital of the Congo and the capital of Katanga, it takes 45 days to make the journey. By the Air Service which is now proposed with the present type of machine, it will only take two days. The machines will be in touch with the aerodromes the whole of this flight by means of wireless telephony.

The inauguration of a Congo service after three years of flying and investigation along the Congo will see at last the

on behalf of the Belgian air authorities. The Chevalier Lieut. Willy Coppens had been invited, but was prevented from being present. Among those present may also be mentioned Maj.-General Sir Sefton Brancker, Director of Civil Aviation; and Col. Frank Searle, managing director of Imperial Airways, Ltd., and Col. Alec Ogilvie, of Ogilvie and Partners. Mr. Handley Page received the visitors and explained the object of the three-engined arrangement. After lunch the machine was taken out on the aerodrome and Capt. Wilcockson took it for a flight, among his passengers being Sir Sefton Brancker, who occupied the seat next to the pilot. The W.8 F. got off after a very short run, assisted by a strong wind, and climbed at an excellent angle. As already mentioned, during the flight the machine was flown on the two Siddeley "Pumas" only, the Rolls-Royce "Eagle" being throttled right back. The weather conditions were not, however, suitable for prolonged tests, and after a flight of a quarter of an hour Capt. Wilcockson landed in the usual



SOME CONSTRUCTIONAL DETAILS OF THE HANDLEY PAGE W.8 F: 1. Shows the tubular framework of the central engine mounting, with details of terminal fittings. 2. A typical inter-plane strut fitting with details. 3. The tail skid renewable shoe.

realisation of the plans worked upon so long and only made possible by the great interest and material support which H.M. King Albert has afforded, and by the strenuous work and technical experience of those interested in the actual execution of the project.

A Demonstration at Cricklewood

Owing to a very strong and gusty wind the demonstration on Friday could not be carried out in its entirety, but the machine was flown with the Rolls-Royce "Eagle" throttled right down, the two Siddeley "Pumas" flying the machine quite comfortably. It seems even likely that with both side engines stopped the central Rolls-Royce will be capable of just about flying the machine level, or at any rate only descending very slowly indeed, carrying perhaps a little less than full load. Thus it would appear that entire engine failure should be most unlikely to occur, and that on all its flights the machine should be able to reach its destination.

At Friday's demonstration a number of distinguished Belgian representatives were present, some watching the performance on behalf of the SABENA Company and others

smooth style which one associates with the landing of Handley Page machines.

During the course of its construction representatives of *FLIGHT* have been permitted to examine the constructional details of the W.8 F., and to make sketches and take photographs. The illustrated technical article which follows is the result, and from this the main points of the design should be clear.

THE NEW HANDLEY PAGE W.8 F. Technical Description

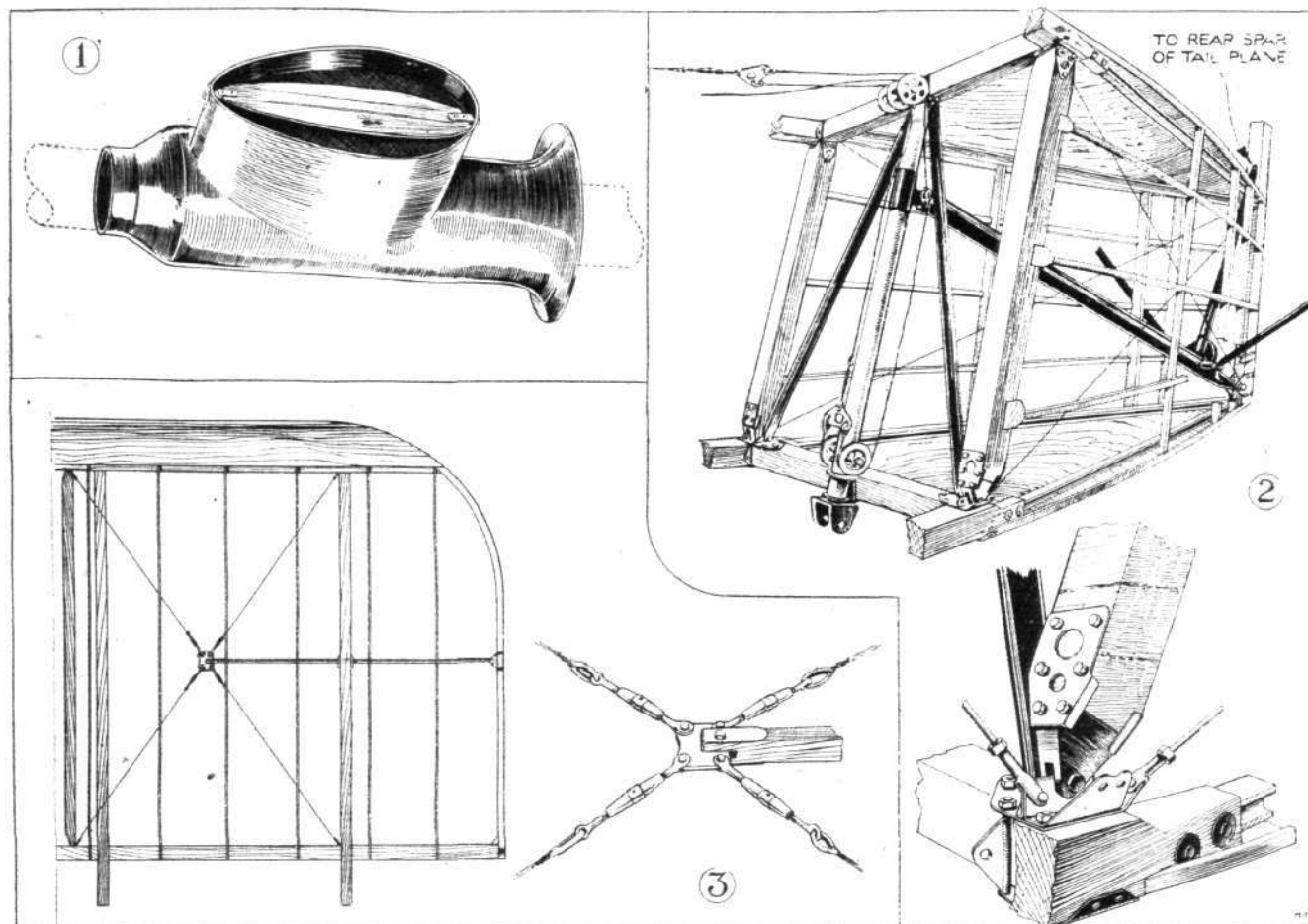
THE *raison d'être* of the new Handley Page W.8 F three-engined machine has already been indicated in the notes above. Elimination, as far as humanly possible, of the possibility of total engine failure is the keynote. Not only are there three separate engine units, but of these the most powerful is in the nose of the fuselage, so that the turning moment with one of the wing engines stopped is reduced to a minimum. Actually during a test the pilot, when throttling down one of the "Pumas," gave opposite rudder as he had been used to do on the twin-engined Handley Page W.8 B's,

and the machine turned under the action of the rudder, the fact of stopping one engine apparently having but very little effect and needing but the slightest amount of rudder to counter the turning. Thus both from the point of view of turning moment, and on the score of power loading, the machine is easily capable of flying on any two of the three engines, i.e., the central Rolls-Royce and either of the Siddeleys, or on the Siddeley "Pumas" only. In fact, it is probable that with somewhat less than full total load, the machine will fly level on the Rolls-Royce "Eagle" only. At any rate, the descent would be very slow, and the machine able to fly quite a long distance before being forced to land. What should further assist in providing freedom from total engine failure is the fact that each engine unit is complete, with its gravity petrol feed from tanks carried in the top plane. Thus any disturbance in the petrol system of one engine, in itself unlikely with direct gravity feed, does not upset the other, and failure from this cause should be almost unknown.

with the exception of the floor, provides emergency exits in case of accidents.

A special heating and ventilation system has been developed for this machine. The former consists of mufflers around the two long exhaust pipes running back, under the fuselage, from the Rolls-Royce engine. These mufflers have short pipes leading up through the floor of the cabin, and are fitted with butterfly valves so that the amount of warm air admitted can be regulated. Entering at floor level the warm air rises and is circulated throughout the cabin, finally to be expelled at or near the roof, where aluminium pipes with bell mouths project into the open. The pipes on one side point aft, tending to exhaust the air from the cabin, while those on the other side point forward and give presumably a certain amount of "forced induction."

Behind the passenger cabin, and with a separate door on the port side, is a large luggage compartment, which gives ample accommodation for rather more than the usual amount of luggage. A second and smaller compartment is



FURTHER CONSTRUCTIONAL DETAILS OF THE HANDLEY PAGE W. 8 F: 1. The exhaust-heated muff carrying warm air into the cabin. 2. Details of the tail plane trimming gear. 3. The neat strut arrangement which steadies the wing-tip rib

Apart from the addition of a third engine, in the nose of the fuselage, the W.8 F, as the three-engined machine is numbered, follows very closely the lines of the well-known and well-tried W.8 B, except of course that the two wing engines are Siddeley "Pumas" in place of the two Rolls-Royce "Eagles" of the W.8 B.

The fuselage is of rectangular section, and is a girder structure with spruce longerons and struts, cross-braced with tie rods. As the details are of standard Handley Page type, which have been illustrated in previous descriptions of H.P. machines, no further reference to them is required here.

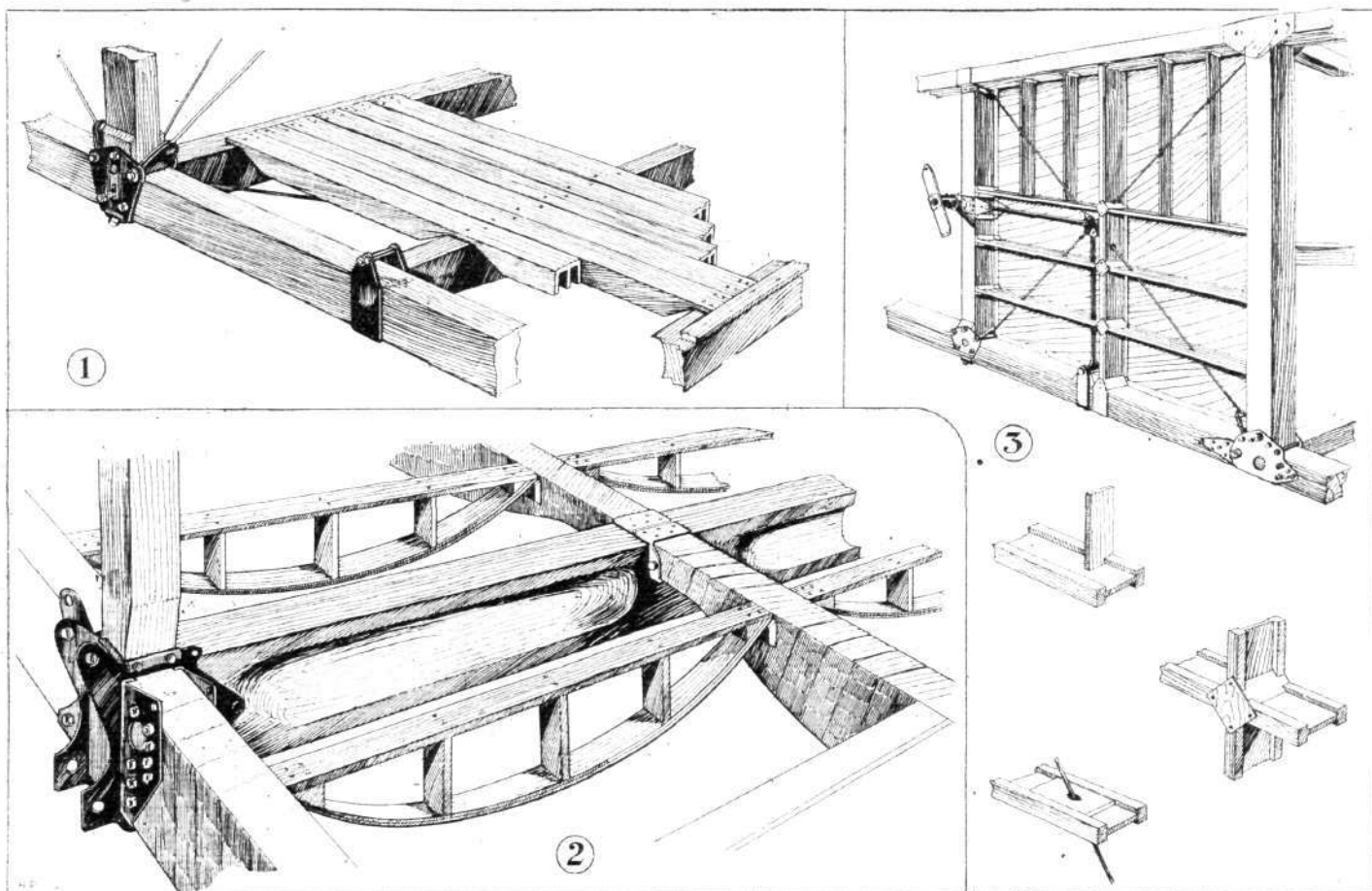
The cabin is of large proportions, with plenty of width and leg-room. Wickerwork seats are arranged along the sides, with an aisle down the centre. The cabin is entered through a door in the port side, and large windows provide good lighting. As in the older twin-engined machines, the covering over the cabin portion, as well as over the rest of the fuselage, is fabric, so that in case of a crash the passengers have but to rip the fabric when they can emerge from the cabin almost at any point and with the machine in any position. In other words, the whole of the cabin,

situated in front of the cabin, underneath the pilot's cockpit. If desired this can also be used for luggage, or for spares or anything else that it is desired to carry. Thus, although the accommodation in the cabin only provides for 10 passengers, the useful load of the machine is considerably in excess of that of the passengers, being somewhere in the neighbourhood of 2,550 lbs.

Immediately aft of the central engine, between it and the cabin, is the pilot's cockpit on the port side. On the starboard side is another seat for the navigator or engineer. Access to this cockpit is through the cabin via a small door in the front wall. This is shown in one of our photographs. The view from the pilot's seat is, of course, very good, and is only slightly obstructed by the engine cowling in front of him. To the sides, and downward by leaning out, the view is quite unhindered.

The Power Plant

As already mentioned, the power plant consists of one Rolls-Royce "Eagle" in the nose of the fuselage, and two Siddeley "Pumas" on the wings. The central engine is mounted on a steel tube structure in the nose, shown in one of our sketches, while the "Pumas" are supported,



THE HANDLEY PAGE W. 8 F : 1. Details of floor construction in luggage compartment. 2. Floor construction in passenger cabin. The floor is in the form of three-ply sheet. 3. Details of fuselage bracing in luggage compartment.

leaning outward at a slight angle, from the inner pair of inter-plane struts. The reason for the slight inclination of the wing engines is not quite clear at first, but we are informed that this has been adopted to facilitate removal of the engines. These engines, by the way, are not cowled in, a fact which further adds to the facility with which they can be inspected and adjusted. Nose radiators are placed in front of all three engines.

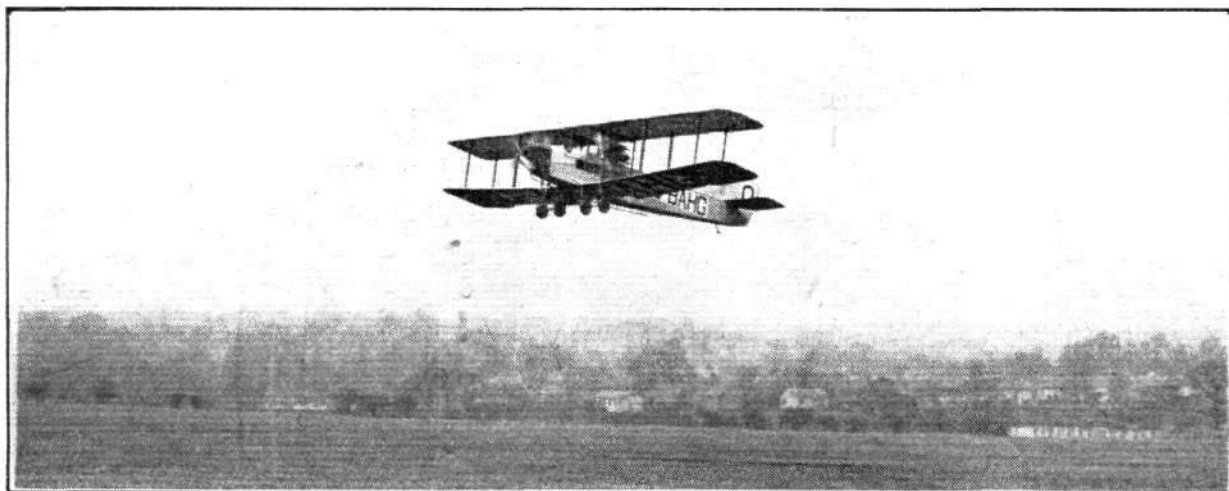
The petrol system, as already stated, is of the direct gravity feed type, the two tanks in the top centre section supplying all three engines. There should thus be very little possibility of trouble with the fuel supply system. The capacity is sufficient for about four hours' flight.

The Wing Structure

The wings are of usual Handley Page construction, which is already well known, and does not, therefore, require further comment. As in the twin-engined machines, the lower plane is set at a pronounced dihedral, while the top plane is straight. Ailerons are fitted to both top and bottom planes, and are of the leading-edge-balance type, mounted on brackets pro-

jecting aft from the rear main spar. The tail also is of usual Handley Page type, but the manner in which the tail is trimmed is somewhat unusual. One of our sketches illustrates the arrangement. The tail plane, as usual, is hinged on its front spar. The rear spar is supported by a tube in the centre, and by two sloping struts at the sides. These two struts are anchored to the forked end of the central strut, which in turn is bolted to a very stout telescopic tube running fore and aft. At its lower end this tube is hinged at the foot of the stern post, while its upper and forward end slides up and down a vertical tube. From the forward end cables are taken around pulleys and to the tail plane trimming gear on the outside of the pilot's cockpit.

The main dimensions of the Handley Page W. 8 F are shown on the general arrangement drawings. The total loaded weight is 13,000 lbs., giving a wing loading of 11.2 lbs./sq. ft., and a power loading of 16.3 lbs./h.p. The useful load is 2,550 lbs. (this figure does not include the weight of the petrol), or 3.2 lbs./h.p. The maximum speed is about 102 m.p.h. and the cruising speed approximately 85 m.p.h.



The Handley Page W. 8 F in flight.

BUT little progress has been made during the past week by the British and American world-flyers. Having successfully completed the first stage of the world-flight, *i.e.*, Calshot-Karachi, misfortune once again befell Squadron-Leader MacLaren and his Vickers-Napier "Vulture" amphibian flying boat at an early stage of the second section.

Strangely enough, the trouble this time was somewhat similar to the mishap which brought them down at Corfu, when the engine reduction gear stripped. In the second mishap the bolts holding the reduction gear-wheel *in situ* sheared, thus placing the second engine out of commission, with cracked crank-case, etc. But of this more anon.

As regards American progress, at the time of writing it is reported that Major Martin, who made a forced landing on his way to Chignik, is on his way to Dutch Harbour, where the other three aviators have been awaiting him since April 20.

Last week we left Squadron-Leader MacLaren at Bandar Abbas, at the foot of the Persian Gulf, where he arrived on April 22. At 8.25 a.m. the next day, April 23, a start was made on the final 750 miles of the first stage, to Karachi. Two hours after leaving Bandar Abbas they passed over Jask, and just before mid-day landed at Charbar, having completed about 325 miles. After a stay here of nearly two hours they resumed the flight to Karachi, where, dead on to schedule time, they arrived at 6 p.m., having covered this last 425 miles in 4½ hours. On arrival they were accorded an enthusiastic welcome, and were received by Mr. Rieu, Commissioner in Sind, Major-General Cooke, commanding the Sind and Rajutana district, Wing-Commander Hicks, commanding the Royal Air Force, and by many other notabilities. Having thus completed two "legs" in the same day, Squadron-Leader MacLaren and his companions were naturally somewhat fatigued, but thoroughly fit and happy. Thus the first stage of nearly 5,000 miles ended.

The next two days, Thursday and Friday, were spent in giving the machine and engine a thorough overhaul and clean-up, in which the R.A.F. at Karachi rendered valuable assistance. Squadron-Leader MacLaren, F.O. Plenderleith and Sergeant Andrews also took the opportunity of obtaining a

well-earned rest. On Friday they received a telegram from the Viceroy, offering his heartiest congratulations on the fine flight to India, and wishing every success on the journey to come.

Early on Saturday morning (April 26), just after 7 a.m., they started off on the second stage, to Tokio, of 5,880 miles. They hoped to reach Nasirabad, the first stop, 519 miles away, by about 2 o'clock in the afternoon. Fate said otherwise, however, for at Partu, but 140 miles from their goal, the reduction gear gave out once more. Fortunately, they managed to effect a safe landing, without hurt to the machine or themselves. Examination of the breakage disclosed the fact that it was a case beyond a matter of "spare parts," and so Squadron-Leader MacLaren forthwith returned by rail to Karachi, where it is hoped he will be able to arrange for the despatch by air of a new engine. If this can be managed the delay will be considerably lessened.

Of the American attempt the latest report to hand states that Major Martin, the leader of the flight, left Kanatak, where he had been effecting repairs during the week, on Friday, April 25, and arrived at Chignik (a distance of 150 miles) in the evening. It was his intention to fly on to Dutch Harbour and rejoin the other three members of the flight on Saturday, but so far no further news on this point has been received. Reports from Dutch Harbour stated that weather conditions were good, in spite of the intense cold—the three machines being coated with snow and ice.

The American team, of four Douglas biplanes (400 h.p. "Liberty"), consists of Major F. L. Martin, Lieuts. L. H. Smith, L. Wade and E. H. Nelson, and mechanics. They started from Santa Monica on March 25.

The British flight is made up of Squadron-Leader A. S. C. MacLaren, Flying Officer J. Plenderleith and Sergeant Andrews, on a Vickers (Napier "Lion") amphibian flying boat.

Respective mileage (approximate) completed to date—*American*, 3,050 miles; *British*, 5,270 miles.

FOR the past six weeks the eyes of the aviation world—and the world in general for that matter—have been centred upon the rival efforts of the British and American aviators in their respective flights round the world, during which time the Americans disposed of some 3,000, and the British 5,000, miles of the total distance to be covered. Then during the week-end, like the whirlwind that accompanied it, comes the Frenchman, Lieut. Peletier d'Oisy, who—without any preparation to speak of and flying a standard military machine—covers about 3,000 miles of much the same route as that marked out in the world-flight in not more than six days!

Starting from Paris on April 24, Lieut. d'Oisy, accompanied by Sergeant Vesin, set forth on his remarkable dash for Tokio, a distance of about 11,200 miles. Seven hours after leaving Villacoublay he passed over Budapest, and four hours later he landed at Bukarest, having thus accomplished a non-stop flight of 1,140 miles in about 11 hours.

Spending the night at Bukarest, he resumed his journey at 9 a.m. the following morning, and, flying *via* Adrianople, Constantinople, and Konia, arrived at Aleppo at 5 o'clock the same evening, having made another fine non-stop flight of 930 miles in eight hours, during which he encountered very



PARIS-TOKIO FLIGHT: Sketch-map of the route taken by Lieut. Peletier d'Oisy in his dash to Japan, when he left Paris on April 24 and arrived in Karachi on April 29.

unfavourable weather, especially when crossing the Taurus mountains—which he accomplished at a height of about 12,000 ft. On approaching Aleppo, however, the weather conditions improved considerably.

The night was spent in Aleppo, and early next morning, Saturday, April 26, he started off again and a 460-mile flight brought him to Baghdad during the afternoon. Reports vary as to whether he continued his flight to Basra, at the head of the Persian Gulf, that same day—some saying he arrived at this place on Saturday evening, and others stating that he left Baghdad for Basra on Sunday morning. However, it is certain that he successfully covered the 275 or so miles between

military machine, and no arrangements have been made for spare parts, etc., *en route*, Lieut. d'Oisy carrying his spare parts with him—amounting, it is said, to a weight of 1,000 lbs.—and relying on being able to pick up fuel at the various stopping-places. The machine is a Breguet type XIXA "Sesquiplan," fitted with a 400 h.p. Lorraine-Dietrich engine. It is a two-seater fighter or observation machine of all-metal construction—mainly duralumin. The fuselage is of tubular construction for the longerons, and in place of the usual struts, formers of lattice girder construction, stamped from flat sheet, are employed. The principal characteristics of this machine are: Span, 14·960 m.; overall length,



PARIS-TOKIO FLIGHT : The Breguet XIX Sesquiplan, which is the type of machine, fitted with a 400 h.p. Lorraine-Dietrich engine, Lieut. Pelletier d'Oisy is flying.

these two cities, and later flew on to Bushire—another 225 miles—where he landed at 2 p.m. on Sunday afternoon. Here he delivered a message from the French Department of Military Aeronautics to the French Air Mission, consisting of a pilot and three mechanics, which has been in Persia since February with the object of starting an aviation school there.

Early Monday morning, April 28, Lieut. d'Oisy left Bushire for Bandar Abbas, 400 miles distant, and arrived there two and a half hours later. At the time of writing there is no further news to hand as to any further progress—in any case, within the week he has very nearly caught up to Squadron-Leader MacLaren, who started on March 25!

As previously stated, Lieut. d'Oisy's mount is a standard

9·100 m.; height, 3·340 m.; wing area, 46·6 sq. m.; weight, empty, 1,180 kgs.; maximum speed, 228 km.p.h. (196·5 km.p.h. at 6,000 m.); climb to 6,000 m., 39 mins.; ceiling, 7,000 m.

The general features of the Breguet XIX may be seen from the accompanying illustration.

Lieut. d'Oisy intends to take the following route to Tokio after reaching Karachi-Allahabad, Rangoon, Saigon, Hanoi, Hong-Kong, Shanghai, Peking, and Seoul. Should he succeed in reaching Tokio, there is every possibility of his continuing his flight eastward, across the Pacific and back to Europe, *via* the South American coast and the Azores in the hope of beating the other world-flyers.

Lisbon-Macao Flight

THE Portuguese military airmen, Capt. Antonio Paes, Lieut. Sarmento Beires and S.-Lieut. M. Gouveria—who are flying from Lisbon to Macao on a Breguet biplane, and who will probably join the ranks of the world-flyers—resumed their journey from Heliopolis, Cairo, on April 23, and eventually arrived at Damascus. On Saturday they reached Baghdad—curiously enough, the same day Lieut. d'Oisy arrived.

Round Australia Flight

WING COMMANDER GOBLE and Flying Officer MacIntyre, who are engaged in a flight round Australia, left Thursday

Island at 6.30 a.m. on Wednesday, April 23, on what was considered the most difficult stage of the flight—a 400-mile journey across the Carpentaria Gulf. They arrived safely at Elcho Island, on the other side of the Gulf, the same day, having experienced very bad weather *en route*. On the following day they left Elcho and flew on to Darwin, a distance of about 300 miles. From Darwin they next made two more "hops" to Broome, in Western Australia, a distance of 700 miles. Thus, they have now completed some 3,860 miles out of the grand total of 9,000 odd miles round Australia. They are flying a Fairey 3D seaplane (Rolls-Royce engine).

AIR MAIL SERVICE FOR

LETTERS FROM BELFAST

THE Postmaster General announces that on Thursday, May 1, a new Air Mail will be instituted for letters, etc., but not at present for parcels, from Belfast to Liverpool. The special air fee will be $\frac{1}{2}$ d. per 2 oz. in addition to ordinary postage at the appropriate inland or foreign rate. The mail will be closed at Belfast Head Post Office each week-day at 5.35 p.m. for packets posted in the public letter-box and at 5.45 p.m. for packets on which an additional late fee of $\frac{1}{2}$ d. per packet has been prepaid.

The following advantages are offered for packets posted in Belfast and most other places in Northern Ireland in time for inclusion in the Air Mail:—

(a) Earlier delivery generally in England (the North excepted) and Wales; and in particular, delivery by first post next morning in London, Cardiff, Bristol, Nottingham and most other large towns;

(b) Connection with dispatches to the Continent from

London next morning, either by Air Mail (subject to additional prepayment of the relative air fee as shown in the Air Mail leaflet), or by ordinary route; and

(c) Connection on Tuesdays and Fridays with the next day's regular dispatches to Canada, United States of America, etc., from Southampton (as shown by the Post Office Daily List).

Packets intended for inclusion in the Air Mail must bear in the top left-hand corner of the cover the blue official Air Mail label, or be plainly marked in manuscript: "By Air Mail."

Further information regarding the new Air Mail and the latest time of posting can be obtained by applying to the Postmaster, Belfast, or at any Head Post Office in Northern Ireland. Air Mail labels and a copy of the current Air Mail leaflet can be obtained free at any Head or Branch Post Office. A new edition of the leaflet, embodying particulars of the Belfast-Liverpool service, will be issued shortly.

AIR MINISTRY NOTICES

TO GROUND ENGINEERS

Standard Straining Cord in Aircraft

1. THE use of straining cord which is protected against corrosion by galvanising *only* is prohibited on account of the unreliability of soldered joints, due to the difficulty of obtaining good adhesion between the solder and the galvanised surface.

2. Only straining cord with a tinned surface is permissible. The galvanising of the individual strands previous to the drawing of the wire is permissible provided the strands are subsequently tinned previous to the manufacture of the straining cord.

3. Galvanised *extra flexible cables*, however, are still permissible, as the splices of this class of cable do not require a soldering operation.

(No. 4 of 1924.)

Aluminium Soldering of Blow-Holes in Aero Engine Castings : Precautions

1. No process of aluminium soldering or welding has been approved by the Air Ministry for the repair of broken or cracked aero engine parts.

2. Any small blow-holes that are found in accepted castings and are unlikely to influence the strength or reliability of the part should be left untouched. To secure a sound oil or water-tight joint face, however, a screwed plug should be applied to the filling of the defect wherever possible.

3. If screwing, as in paragraph 2, is not feasible, aluminium soldering may be employed, provided that the blow-hole is such that the filling is properly keyed into the casting so that it cannot shake loose under vibration. The part to be treated should be uniformly heated up to a temperature not exceeding 250 degrees C. in a suitable oven or furnace providing an even and controllable temperature. The small blow-holes to be filled must be carefully scraped and scratch-brushed before soldering, after the completion of the heating operation, and no flux must be used. A blow lamp is not under any circumstances to be used in the soldering operation, but a soldering iron only. Details of the process as carried out should be recorded in the engine log book.

(No. 5 of 1924.)

Aerodromes for Civil Use : Amendments

It is notified :—Notice to Airmen No. 1 of 1924 (Aerodromes for Civil Use : Consolidated List) is amended as follows : Smoogroo aerodrome should be deleted from List B.—Aerodromes available for Civil Machines in Emergency Only.

(No. 29 of 1924.)

France : Aerodromes

A SUMMARY of existing conditions has been issued by the Air Ministry, relating to French aerodromes, as to obstruction, landing facilities, etc., reference being made to the following aerodromes :

Toulouse, Amberieu, Montelimar, Perpignan (civil aerodrome now available here), Agen, Chatillon-sur-Seine, Saint Dizier and Berck-sur-Mer.

(No. 30 of 1924.)

Private Pilots' Licences : Further Conditions of Grant and Renewal

THE attention of all concerned is called to the Air Navigation Directions, 1924 (A.N.D. 3C), which became operative on March 31, 1924.

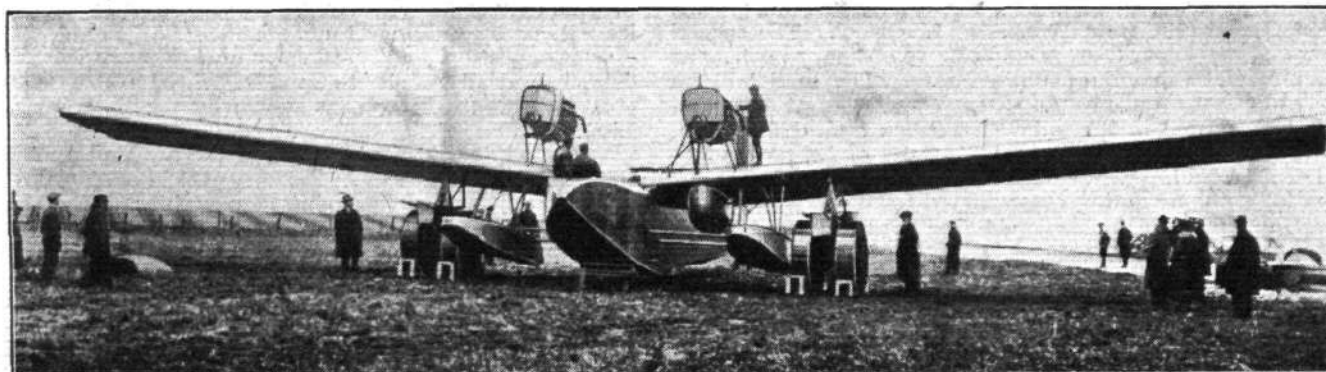
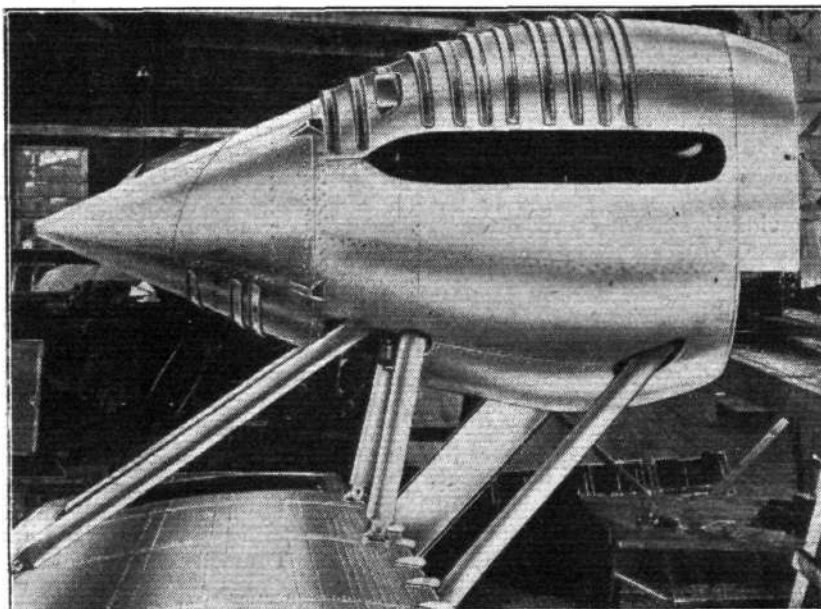
Under these directions, applicants for the issue or renewal of Private Pilots' Licences (Class A) are required (a) to undergo a medical examination, and (b) to produce certain proof of recent flying experience, or, alternatively in the case of applications for renewal, to carry out certain practical tests.

These Directions also lay down the conditions under which a person not already holding a Private Pilots' Licence may fly in order to become legible for a licence.

Copies of these directions may be obtained from H.M. Stationery Office, Imperial House, Kingsway, W.C. 2, or through any bookseller, price 1d. net.

(No. 33 of 1924.)

The Rohrbach all-metal Mono-plane Flying Boat: This machine, designed by Herr Rohrbach and built by the Rohrbach Aeroplane Company of Copenhagen, is fitted with two Rolls-Royce "Eagle" engines. In the view below the machine is seen on the ground, with four large wheels for transport. On the right the cowlings of one of the Rolls-Royce engines. The petrol tanks are mounted under the wing, while slightly farther out may be seen the floats that give lateral stability on the water.



THE ROYAL AIR FORCE

London Gazette, April 22, 1924

General Duties Branch

The following are granted permanent commns. as Flight-Lieuts. (April 23):—H. W. Baggs, W. M. Fry, M.C. The following are granted short service commns. as Flying Offrs., with effect from, and with seny. of, the dates indicated:—C. Wilson; April 14. R. Y. Eccles; April 15. Pilot Offr. on probation T. W. G. Cattell is confirmed in rank; April 10. Flight Lieut. T. S. James is transferred from Stores Branch to General Duties Branch, retaining his present rank and seny.; April 11. Squadron Leader R. Addenbrooke-Prout resigns his permanent commn.; April 23.

Stores Branch

Pilot Offr. on probation J. Charles is confirmed in rank and is promoted to rank of Flying Offr.; Dec. 5, 1923.

Medical Branch

R. L. C. Fisher, M.B., is granted short service commn. as a Flying Offr., with effect from, and with seny. of, April 7.

Princess Mary's Royal Air Force Nursing Service

Staff Nurse Miss M. Simpson relinquishes the acting rank of Sister; Jan. 29.

Reserve of Air Force Officers

H. S. Basford is granted a commn. as Pilot Offr. on probation in Class A. General Duties Branch; Mar. 11 (substituted for *Gazette*, Mar. 11, 1924). Pilot Offr. W. V. Piggott is transferred from Class A to Class C; Feb. 24. The following Flight Lieuts. are transferred from Class B to Class C, with effect from the dates indicated:—C. G. Hetherington, M.B.E.; Jan. 21. W. P. Woodcock; Nov. 22, 1923.

Memorandum

The permission granted to the following to retain rank is withdrawn on their enlistment in the Army:—Lieut. G. J. L. Campbell, Sec. Lieut. G. H. Clarke, Sec. Lieut. C. Armstrong.

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Air Commodore F. C. Halahan, C.M.G., C.B.E., D.S.O., M.V.O., to Air Ministry, on appointment as Director of Technical Development. 18.4.24.
Group Captain C. F. Kilner, D.S.O., to H.Q., Coastal Area, for duty as Chief Staff Officer. 14.4.24.

Wing Commanders: A. C. Winter, O.B.E., to R.A.F. Depot, on transfer to Home Estab. 2.4.24. A. Shekleton, D.S.O., to R.A.F. Depot, for charge of Central Trade Test Board. 7.5.24.

Squadron Leader R. B. Maycock, C.B.E., to Marine Aircraft Experimental Estab., Felixstowe. 1.5.24.

Flight Lieutenants: H. L. Nunn, D.S.C., D.F.C., to H.Q., Coastal Area. 1.5.24. F. St. J. Woollard, A.F.C., to H.Q., Egypt, instead of to No. 216 Sqdn., as previously notified. 31.3.24. F. H. E. Reeve, to remain at No. 216 Sqdn., Egypt, instead of to H.Q., Palestine, as previously notified. H. T. Lydford, A.F.C., to No. 4 Flying Training Sch., Egypt. 1.4.24.

Flying Officers: C. Ayling, to remain at R.A.F. Depot, instead of to No. 11 Sqdn., as previously notified. C. Wilson, to R.A.F. Depot, on appointment to a short Service Commn. 14.4.24. W. J. Brown, to R.A.F. Base, Calshot. 15.4.24. H. A. Castaldini, to No. 1 Stores Depot, Kidbrooke. 23.4.24. R. Y. Eccles, to R.A.F. Depot, on appointment to a Short Service Commn. 15.4.24. R. R. Greenlaw, to No. 47 Sqdn., Egypt. 7.4.24. G. V. Carey, to No. 2 Sqdn., Manston. 1.5.24. G. C. B. Bernard-Smith, to R.A.F. Depot (Non-effective Pool), instead of to No. 4 Sqdn., as previously notified. 23.10.23. T. A. Verney-Cave, to Sch. of Army Co-operation, Old Sarum. 19.5.24.

Pilot Officers: R. H. Carter, to R.A.F. Base, Leuchars. 17.4.24. F. Boston, D. T. H. Hooke, and A. S. Lewis, to Sch. of Army Co-operation, Old Sarum. 1.5.24. L. M. T. Marescaux, to No. 7 Sqdn., Bircham Newton. 1.5.24. H. I. Cozens, R. T. Taaffe, and N. J. Wiltshire, to No. 2 Flying

Training Sch., Duxford. 1.5.24. J. R. Pocock, to R.A.F. Base, Gosport. 1.5.24. D. R. Stewart, to No. 84 Sqdn., Iraq. 5.3.24.

Pilot Officers: W. D. Baxter and H. V. Kerchove, M.C., to R.A.F. Base, Leuchars. 1.5.24. E. G. Whinney, to No. 19 Sqdn., Duxford. 1.5.24.

Stores Branch

Squadron Leader W. J. Waddington, O.B.E., to No. 2 Stores Depot, Altrincham. 1.4.24.

Flight Lieutenant L. E. Carter, D.C.M., to No. 2 Stores Depot, Altrincham. 1.4.24.

Flying Officers: C. E. Tidy, to R.A.F. Depot on transfer to Home Estab. 1.3.24. N. Dainty, to Air Ministry. 1.5.24.

Flying Officer J. J. Ironmonger, to No. 2 Stores Depot, Altrincham. 1.4.24. H. J. Bamber, to Aircraft Depot, India. 18.4.24.

Medical Branch

Flight Lieutenants: W. E. Hodgins, M.B., to No. 31 Sqdn., India. 13.3.24. J. D. Leahy, M.C., M.B., B.A., to No. 5 Sqdn., India. 13.3.23. F. T. Boucher, to Research Lab. and Medical Officers Sch. of Instruction, Hampstead, for short course on appointment to a Short Service Commn. 2.4.24. R. L. C. Fisher, M.B., to Research Lab. and Medical Officers Sch. of Instruction, Hampstead, for short course on appointment to a Short Service Commn. 7.4.24.

Flight Lieutenants: F. T. Boucher, to Sch. of Naval Co-operation, Lee-on-Solent. 22.4.24. T. P. Harpur, to R.A.F. Depot. 15.4.24. A. W. Comber, to Inland Area Aircraft Depot, Henlow. 15.4.24. E. G. Howell, to Aircraft Depot, Egypt. 31.3.23.

Flying Officer: F. W. G. Smith, M.B., B.A., to Marine Aircraft Experimental Establishment, Felixstowe. 12.4.24.



GROUP PHOTOGRAPHED ON THE OCCASION OF THE DEMONSTRATION OF THE NEW HANDLEY PAGE W. 8 F, ON FRIDAY OF LAST WEEK: From left to right, Mr. F. Handley Page, M. Wanters, M. J. B. Richard, Col. Edwards, Col. Frank Searle, Capt. Wilcockson, Commandant Nelis, General Sir Sefton Brancker, Commandant Renard, and Professor Allard.

AIR POST STAMPS

By DOUGLAS B. ARMSTRONG.

Colombian Air Stamp

THE S.C.A.D.T.A. (Sociedad Colombo Alemana De Transportes Aereos), which has established a satisfactory record during the three years that it has been operating passenger and air-mail services under concession from the government of Colombia, has already a number of stamp issues to its credit, some of them by no means common. They are used to denote the additional charges that the contractors are authorised to levy over and above the regulation rates of postage defrayed by ordinary postage stamps of the republic. The first stamp issued by the S.C.A.D.T.A. made its debut on November 24, 1921, in the denomination 10 centavos, lithographed at Barranquilla with a semi-circular vignette of a hydroplane following the course of the Magdalena River, supported by native caryatides. Additional denominations of 15, 30 and 50 centavos were printed in the same type, the last two being sold by the Company's agent in New York for the convenience of American firms trading with Colombia. On December 19, 1921, a full series of ten values was brought into use, having been printed in Munich in two separate designs and perforated 12½. The vignette on the "centavos" stamps represents a postal hydroplane *en route* from the coast to Bogota, the capital in the interior, whilst that of the values in "pesos" shows its arrival at the city. These stamps may be found overprinted with various initials signifying that they have been sold by the agents of the S.C.A.D.T.A. in different countries to enable correspondents to prepay the air post fees, and so expedite delivery of their letters on arrival in Colombia. Thus the letter "A" stands for Allemagne (Germany), "G.B." for Great Britain, "H" for Holland and Curacao, "D" for Denmark, "E.U." for Etats Unis (United States), etc.

The stamps at present in use are a modified version of the 1920 issue with the inscription amended from "Servicio Postal Aereo," to which the Colombian post office took exception, to "Servicio Transportes Aereos." They are the work of the State Printing Works, Berlin, and are impressed upon paper having a distinctive watermark of noughts and crosses.

Warsaw Air Post

To the same authority we are indebted for the following particulars of the regular Polish air post service. At the close of the winter 1922-23 the old air post lines connecting Warsaw with Paris, Prague, Strasburg and Vienna were re-opened on February 21, 1923. On March 15 the service was extended to Danzig and Lemburg, in the following May to Budapest, Belgrade and Bucharest, and on August 7 to Cracow.

At Warsaw air post letters were distinguished by a rubber stamp cachet, inscribed "Par avion Percu frcs. mks." Lemburg made use of a two-line cachet, reading "POCZTA LOTNICZA—POST AERIENNE," in red or black, whilst Cracow had at first no air post mark, but inscribed its aero letters laboriously by hand "Poczta lotnicza, oplata gotowky 2,000." Between November 15 and December 15, 1923, however, special cachets, lettered "PAR AVION" and "POST AERIENNE" in black, were employed, as well as another type with the words "Nadeszlo Poczta—Lotnicza" in two lines in a frame, struck in violet at Warsaw, and in red at Cracow. On the occasion of a flight over Warsaw by the Aerolloyd aeroplane on April 3, 1923, souvenir cards and envelopes were sold and stamped with a special mark, consisting of a Polish inscription in five lines signifying "Flight over Warsaw, promoted on behalf of the charity and housing institution by the publishers of the *Express and Courier*—for despatch by aeroplane, 1,000 mk." The majority of these letters and cards were stamped in black, but about 250 had the cachet applied in red.

Peruvian Air Posts

THERE is talk of an issue of air post stamps in Peru in connection with a projected air mail service. Experimental air flights took place in 1920 and 1921, when a limited number of letters were carried and impressed with special cachets. In connection with the first of these, between Lima and Tumbes via Trujillo, Chiclayo and Paita in September, 1920, two cachets were employed, the one circular in form and lettered "Primer Correo Postal Aereo—Chiclayo Peru, Aviada Nacional Herbert Twedle," and the other oval and struck in violet. Early in 1921 some further mail flights were carried out by the Italian aviator Rolandi, from Trujillo to Lima, and on this occasion an oval cachet inscribed "Servicio Postal Aereo—Trujillo," was employed.

PUBLICATIONS RECEIVED

Wireless Sets for Home Constructors. By E. Redpath. Radio Press Series No. 17. London: Radio Press, Ltd. Price 2s. 6d.

500 Wireless Questions Answered. By G. P. Kendall and E. Redpath. Radio Press Series No. 13. London: Radio Press, Ltd. Price 2s. 6d.

The Halton Magazine. Vol. I, No. 1. The Halton Magazine, Halton Camp, Bucks. Price 6d.

The History of the Pneumatic Tyre. By J. B. Dunlop. Dublin: Alex. Thom and Co., Ltd., Crow Street. Price 5s. net. By post, 5s. 4d.

The Royal Air Force Memorial Fund. Fourth Report. Jan.-Dec., 1923. Royal Air Force Memorial Fund, 7, Idlesleigh House, Caxton Street, Westminster, S.W.1.

U.S. National Advisory Committee for Aeronautics: Ninth Annual Report, 1923.—National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

Department of Overseas Trade. Report on the Economic and Financial Conditions in Belgium, December, 1923.—By J. P. Bagge. London: H.M. Stationery Office, Kingsway, W.C. Price 3s. net.

Verslagen en Verhandelingen van den Rijks-Studiedienst voor de Luchtvaart Amsterdam. Vol. II, 1923. Marine Department, Amsterdam.

Aeronautical Research Committee, Reports and Memoranda. No. 887 (E. 9). Experiments with a Close Tandem Aircrow Pair. March, 1923. London: H.M. Stationery Office, Kingsway, W.C. Price 3d. net.

Bribery, No. 104, March, 1924. The Bribery and Secret Commissions Prevention League, Incorporated, 9, Queen Street Place, E.C. 4.

Note Technique di Aeronautica, March, 1924. Commissariato dell'Aeronautica Intendenza Generale. R. Accademia Nazionale dei Lincei, Rome.

Notiziario di Aeronautica, No. 3, March, 1924. Commissariato dell'Aeronautica Intendenza Generale. R. Accademia Nazionale dei Lincei, Rome.

Revista Aeronautica Orgao do Aero Club de Portugal (F.A.I.). Special Number: Lisbon—Rio de Janeiro. Aero Club of Portugal, Largo do Calhariz, 29, Lisbon, Portugal.

Catalogue

Brittain's Electric Motors.—Brittain's Electric Motor Co., 110, Cannon Street, London, E.C. 4.

NEW COMPANY REGISTERED

BROUGH AVIATION AND RECREATION CLUB, LTD., The Aerodrome, Brough, E. Yorks.—Capital £100, in 1s. shares. To carry on the business of club proprietors at Brough, E. Yorks. First directors: H. B. Bentley, Major F. A. Bumpus, R. Blackburn, and H. S. Martin.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: cyl. = cylinder; I.C. = internal combustion; m. = motor. The numbers in brackets are those under which the Specifications will be printed and abridged, etc.

APPLIED FOR IN 1922

Published April 24, 1924

32,063. S. RAPINO. Instrument for indicating and recording the course of aircraft, etc. (213,306.)

Published May 1, 1924

26,076. C. M. BRUNE. Variable propeller and sustaining-apparatus for aircraft. (213,379.)

APPLIED FOR IN 1923

Published April 24, 1924

4,147. C. DAVIS. Armaments for aircraft. (213,384.)

8,742. SOC. DES MOTEURS SALMON (SYSTEME CANTON-UNNE). Multiple wood-working machine. (197,651.)

17,154. G. B. ENNIS. Rotary engine. I.C. (213,481.)

22,263. SOC. ANON. DES ATELIERS D'AVIATION L. BREGUET. Valve-gear. (203,690.)

Published May 1, 1924

1,543. A. L. MCKELVEY. Aircraft. (213,705.)

3,557. R. B. SMITH. Flying machines. (213,726.)

12,372. SPERRY GYROSCOPE COMPANY. Course-indicating devices. (213,791.)

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